Chapter 1

Introduction
CHAPTER-1
INTRODUCTION

1.1 INTRODUCTION

In macroeconomic policies, high employment, rising output of goods and services and relatively stable prices are three widely accepted goals. Responsibility has been assigned to monetary and fiscal authorities to achieve these goals through economic stabilization measures but there has been growing controversy among them in examining the relative effectiveness of monetary and fiscal action in influencing macroeconomic variables.

Both monetary and fiscal policies are integral part in national macroeconomic stabilization agendas which are designed to achieve a certain policy objective, such as stable low inflation or higher output growth. Since the 1960’s, the relative importance of monetary and fiscal policies in economic stabilization has been a matter of debate among monetarists and fiscalists. According to monetarist’s view, monetary policy has had a more significant role than fiscal policy. On the other hand, the Keynesians School believes that fiscal policy is more powerful than the monetary policy. Fiscal policy refers to changes in government expenditures, taxes or both. Fiscal policy is expansionary if government expenditures are increased and taxes reduced. These actions lead to an expansion of domestic production and income through a multiplier process and induce a rise in imports. Contractionary, fiscal policy refers to a reduction in government expenditures and an increase in taxes, both
of which reduce domestic production and income, and induce a fall in imports.

Monetary policy involves a change in the nation's money supply that affects domestic interest rates. Monetary policy is easy if the money supply is increased and interest rates fall. This induces an increase in the level of investment and income in the nation and induces imports to rise. At the same time, the reduction in the interest rate induces a short-term capital outflow or reduced inflow. On the other hand, tight monetary policy refers to reduction in the nation's money supply and rise in the interest rate. This discourages investment, income and imports and also leads to a short-term capital inflow or reduced outflow.

In recent years, the relative effectiveness of monetary and fiscal policy actions on economic activity has been the source of considerable debate among economists. The subject of relative efficacy of monetary and fiscal policy as alternative instruments of economic stabilization has been a live issue since the restatement of the quantity theory of money by the Chicago school led by Milton Friedman. Further, it was claimed by Friedman and Meiselman that the functional relationship between a change in the quantity of money and the resulting change in the level of income is much more stable and hence more predictable than that between a change in investment and the consequent change in income. The controversy regarding effectiveness of monetary and fiscal policy has in recent times received a sharper edge on account of the choice of the policy instruments involved under the two alternative exchange rates systems-fixed and flexible.
For analysing the influence of monetary and fiscal actions upon the level and structure of economic activity there are three alternative theoretical approaches. The first is the Keynesian "Income Expenditure Approach" emanating from the economic thought of the late 1930's to the early 1950's. Secondly, there is the Portfolio Approach associated with the works of Tobin and Baumol. Finally, there is the Modern Quantity Theory Approach developed by Friedman and Meiselman. These alternative approaches lead to different conclusions regarding the causation, direction, magnitude and efficacy of the monetary policy and fiscal policy as alternative instruments of economic stabilization.

1.1.1 Economic Activity and Policy Variables

According to the Keynesian income expenditure approach, the rate of interest is the main link in the transmission mechanism. Given the liquidity preference schedule, an increase in the quantity of money leads to a fall in the market rate of interest. As private investment is an inverse function of the rate of interest, a fall in the interest rate stimulates investment which implies an increase in aggregate expenditure and this through the multiplier mechanism reacts on the level of income.

In the portfolio approach, the rate of interest also serves as the Kingpin in the relationship between money and income but a change in the interest rate does not affect the investment decisions directly. A change in the interest rate implies a change in the relative price of the whole spectrum of assets and this leads to a substitution for or against money depending upon the direction of the change in the interest rate. This affects the decision to invest in the real assets. Influence on
aggregate expenditure is brought to bear through changes in the market rates of interest relative to supply price of capital.

In the modern quantity theory approach, the public has some desired stock of money relative to its income. Monetary policy, by altering initially the relationship of the actual stock of money to income, induces responses on the part of the public, directed at achieving the desired relationship. The attempt to shift between money and other assets is the source of changes in the level of income, prices and other economic magnitudes. An increase in the money stock results both directly and indirectly in increased expenditure on capital goods and consumption goods. Both commodity prices and interest rates thus constitute an organic component of the transmission mechanism.

Regarding the impact of fiscal action, an increase in government expenditure, according to the income expenditure approach is viewed as directly affecting the demand for goods and services which sets in through the multiplier a process of cumulative expansion. A change in tax policy similarly affects the disposable income and this in turn affects the level of consumption expenditure and investment. Somewhat more sophisticated analysis also introduces the Hicks-Hansen IS-LM framework to take account of the capital market effects of changes in fiscal policy. The direct income generating effects of the deficit are stressed but no indication is given as to whether the rise in income requires stable interest rates, an elastic monetary policy or a deficit financed through the banking system.
The portfolio approach emphasizes both a direct and an indirect influence of fiscal action. The direct influence of financing government expenditure by demand debt of the central bank (monetary base) results in the full Keynesian multiplier effect. Financing by either taxation or public borrowing has a smaller multiplier effect on expenditure. The indirect influence of fiscal policy results from a change in the composition of debt-short term debt, long term debt and demand debt.

In the modern quantity theory, government expenditures financed either by taxation or borrowing involve a transfer of resources from the public to the government with both interest rates and wealth effects on private portfolios, but the net effect of a temporary change may be ambiguous. On the other hand, if the deficit is financed through money creation by the banking system the effect is undoubtedly expansionary.

1.1.2 Exchange Rate System and Choice of Policy

Monetary and fiscal policies have differential impacts under the fixed and flexible exchange rate systems. Under fixed exchange rate system, where capital flows are highly elastic in response to changes in the interest rate, monetary policy has little or no effect while fiscal policy is highly effective. On the other hand, under flexible exchange rate regime, fiscal policy does not have any lasting impact on the domestic levels of income and employment while monetary policy is relatively more effective. Therefore, it is suggested sometimes that fiscal policy should be used for maintenance of domestic stability while monetary policy should be reserved for external stability.
The Mundell-Fleming model, with domestic interest rate determined by the world interest rates, focuses on the role of exchange rate in the determination of national income in the short run. Another important aspect of Mundell-Fleming model is that behaviour of the economy depends on whether it adopts the fixed exchange rate system or flexible exchange rate systems.

Under the fixed exchange rate regime, Mundell-Fleming model follows that when capital mobility is perfect, interest rates in the home country cannot deviate from those prevailing abroad and in this case expansionary monetary policy is ineffective to affect national income and output, fiscal policy is highly effective. The central bank under the fixed exchange rate system with perfect capital mobility cannot conduct an independent monetary policy to achieve domestic economic stability. However, Government can use expansionary fiscal policy to raise the level of national income and employment.

Under flexible exchange rate system, expansionary fiscal policy has the same effect as that of exogenous increase in exports. Real disturbances such as exogenous increase in exports or expansion in government expenditure or a tax cut does not affect equilibrium level of income in a small open economy under flexible exchange rate system with perfect capital mobility. Under flexible exchange rate system, fiscal expansion causes appreciation of exchange rate which causes exports to decrease and imports to increase and thus leads to a shift in the composition of domestic demand towards foreign goods and away from domestic goods. In Mundell-Fleming model expansionary monetary policy under flexible exchange rate regime is highly effective in raising
the level of national income or output. This favourable affect of expansion in money supply on the level of national output comes through its causing depreciation in exchange rate of domestic currency.

Thus analysing the influence of monetary and fiscal actions upon the level and structure of economic activity and comparing their relative effectiveness seems to be an important and interesting area of research.

1.2 REVIEW OF LITERATURE

Various studies at national and International level have been conducted so far to judge the relative effectiveness of monetary and fiscal policies.

1.2.1 Studies Conducted at International Level

A study by Friedman and Meiselman (1963) predicted more stable and statistically significant relationship between output and money than that of output and autonomous spending.

Anderson and Jordan (1968) had used three variables in their model namely money supply, government expenditure and taxation, much of the reported researches have excluded taxation variable from their analysis. Many of them had added exports as yet another variable in the St. Louis equation.

Arun K. Poddar and N. J. Hunking (1971) evaluated empirically certain propositions relating to the relative importance of monetary and fiscal policy for the two time sets of data for the Canadian economy: 1955 to 1961 and 1961 to 1968. The former period was taken as a representative of the flexible exchange rate system and the latter period
as that of the fixed exchange rate system. Multiple regression method was used. They concluded that fiscal variables had the greater impact than monetary variables.

Another study by Gramlich (1971) indicated that both monetary and fiscal policies have impact on real economic activity with the indication that money matters greatly.

Ajayi (1974) emphasized that in developing economy in which Nigeria is a typical example, the emphasis is always on fiscal policy rather than monetary policy. In his work, he estimated the variables of monetary and fiscal policies using ordinary least square (OLS) technique and found out that monetary influences are much larger and more predictable than fiscal influences. This result was confirmed with the use of beta coefficients that changes in monetary action were greater than that of fiscal action. In essence, greater reliance should be placed on monetary actions.

Benjamin Friedman (1977) used the St. Louis equation and claims that the St. Louis equation now 'believes in' fiscal policy.

Carlson (1978) estimated the St. Louis equation and argues that Benjamin Friedman's equation was suffering from the heteroscedasticity problem. His findings suggested that only monetary policy has significant impact on economic activity and fiscal policy does not have any impact on real output.

Hussain (1982) investigated the relative effectiveness of monetary and fiscal policies in Pakistan for the period 1949-50 to 1970-71. He
used both level and first difference variables as well as the koyck distributed lagged model. In his estimation with level variables, Hussain found both the money stock and the monetary base to be quite significant in explaining the variation in GNP for Pakistan. However, when the regression equations were estimated with first difference variables, he found that the changes in government expenditures exert a larger, more predictable and faster impact on Pakistan's GNP than to changes in money stock or money base. He concluded that fiscal policy is relatively more effective than monetary policy.

Batten and Hafer (1983) also discussed the relative effectiveness of the two stabilization policies in some developed countries. In their study, they found out that monetary action rather than fiscal action had a greater influence on the nominal GNP.

Saqib and Yasmin (1987) used the narrow and broad definitions of money as the variables of monetary policy. They used total government expenditures, government current consumption expenditures, government investment and government subsidies as the variables of fiscal policy. They estimated various versions of the St. Louis type equation and concluded that ’monetary impulses have greater leverage and are more dependable.

Benjamin Friedman and Kuttner (1992) examined the post war evidence of significant relationship between money and income using time series approach on extended data through the 1980s for the U.S. economy. The empirical findings do not indicate a close or credible relationship between money and income.
Everett A. Sechtem, Vani V. Kotcherlakota and Gandh i B. Veluri (1997) have examined the effectiveness of monetary and fiscal policies for stabilization purposes. The countries selected for the study were United States, Canada and Mexico. Time period considered for the study was 1971–1992. Both ordinary least squares (OLS) and Cochrane-Orcutt (C-O) methods were used. The study concluded that contemporary economic policies do have a stabilization impact.

Using modified version of St. Louis equation, a study conducted by Latif and Chowdhury (1998) for Bangladesh finds that fiscal policy is more effective over monetary policy in Bangladesh. This study is based on the OLS Technique using the nominal data during 1974-1993. They estimated six different equations of which four have only a single explanatory variable.

Another study on Bangladesh by Hasan (2001) based on the modified version of St. Louis equation predicts that both monetary as well as fiscal policies are important for economic growth. This study used various econometric techniques based on nominal data during 1974-1996.

T.K. Jayaraman (2001) evaluated the impact of fiscal and monetary policies in the south pacific Island countries on economic growth. The reduced form of St. Louis equation was modified to reflect the openness of the four south pacific Island countries by including their export performance as well as their proneness to periodical cyclones. The time period was 1991 -1995. The results of empirical analyses showed that fiscal policies have not been effective in any of the four
countries for promoting economic growth. In Samoa both fiscal and monetary policies have had no influence on growth, on the other hand; natural factors namely annual cyclones had a negative impact on growth in all the four island countries. In Fiji, Tonga and Vanuatu, monetary policy had a positive impact on growth.

Ajisafe and Folorunso (2002) have examined the relative effectiveness of monetary and fiscal policy on economic activity in Nigeria. The time series properties of the variables were investigated by conducting a unit root test using annual series data for the period 1970-1998. The results shows that monetary rather than fiscal policy exerts a greater impact on economic activity in Nigeria.

Md. Habibur Rahman (2005) investigated the relative importance of monetary and fiscal policies in altering real output of Bangladesh. An unrestricted vector autoregressions VAR, frame work, based on the St. Louis equation was used to compute variance decompositions (VDCs) and impulse response functions (IRFs). The results derived from the VDCs and IRFs imply that monetary policy has a significantly positive impact on real output growth in Bangladesh. The impact of fiscal policy on real output growth remains broadly insignificant. The outcome of this study, thus, supports the views of the proponents of the St. Louis model that monetary policy is relatively more effective than fiscal policy in stimulating real economic activity.

1.2.2 Studies Conducted at National Level
A. R. Choudhary (1986) discussed the relative impact of monetary and fiscal policies actions on economic activity in India. Using a
modified St. Louis type reduced form equation for the sample period 1955-1982. The results indicated that growth in government expenditure has a greater impact on changes in nominal income than the growth in monetary base. The dynamic multiplier model suggested that the long run effects of a change in the growth rate of the monetary and fiscal policy variables are also different.

Kamal P. Upadhayaya (1991) used a modified St. Louis type reduced form equation to analyze the effectiveness of monetary and fiscal policies in four South Asian countries: India, Nepal, Pakistan and Srilanka. The empirical estimates showed that only monetary policy is significant in explaining changes in GNP in Nepal and Pakistan, but in Srilanka neither variable is found to be significant. In the case of India, the St. Louis type reduced form equation is found to be inapplicable as the monetary variable is not exogenous. The study concluded that effectiveness of monetary and fiscal policies differs from country to country, depending upon the nature of the economy of the country.

Gian Kaur (1995) evaluated the working of fiscal and monetary policies and to test empirically the relative effectiveness of fiscal and monetary policies in India. Technique of multiple regression analysis had been used over the period 1960-61 to 1990-91. To conclude that in India, fiscal policy influence are stronger, faster and more predictable than the monetary policy influences.

Oluwole Owoye, Akorlie A. Nyatepe-coo and Olugbenga A. Onafowora (1995) examined the relative effectiveness of monetary and fiscal policies in eight Asian countries using a tri-variate VAR model.
The time period was 1960-1990. Results suggested that $M_1$ contained statistically useful information about future movements in nominal GDP in seven of the countries. The results of the variance decomposition tests suggested that monetary policy is relatively more important than fiscal policy in seven of the eight countries. For India, both policies are equally important in explaining future movements in nominal GDP growth.

Dr. K. Dhanasekaran (1996) attempted to test the relative effectiveness of monetary and fiscal policies on aggregate economic activity (nominal GNP) by using a modified form of St. Louis equation on the Indian economy. The period taken was 1970-71 to 1990-91. The results proved that monetary actions have a stronger, more predictable and faster impact on nominal GNP than fiscal actions. The effectiveness of monetary policy is more effective when it is supported by government expenditure. Monetary policy can be used to influence the aggregate economic activity in India.

Mohammed I. Ansari (2001) tests the relevance of monetary and fiscal policy of India and evaluated the impact of recent policy of economic liberalization on their relative effectiveness. Both co-integration analysis and vector-error correction model were used. The period is 1960-1994. Results from impulse response functions and variance decompositions have shown an overwhelming support in favor of fiscal policy dominance in case of India. The monetary policy effectiveness is further undermined by monetary accommodation of some evidence of a small change in the relative monetary-fiscal policy effectiveness. In case of India, any further investigation in this direction has to wait until enough information becomes available. Some of the
newly industrialized countries, with a longer tradition of economic liberalization may constitute a better research agenda for testing the impact of economic reform on the relative effectiveness of monetary and fiscal policies.

G. Ramathilagam and Ms S. Amudha (2004) have examined the relative effectiveness of fiscal and monetary policies using the Indian macro level data for the period 1970-71 to 1999-2000 in the modified St. Louis equation and Granger causality frameworks and had confirmed that monetary policy as measured by $M_1$ is relatively more potent than fiscal policy. The findings of the study revealed that there was not much change in the impact of monetary versus fiscal policy. They underlined the need for limiting government expenditure that results in crowding out effect and recommended that the government should focus on monetary policy targets and strive for central bank independence to ensure stability in the policy environment. They concluded that fiscal policy is a necessary but not a sufficient condition for stability in the economy.

1.3 OBJECTIVES AND RELEVANCE OF THE STUDY

A review of various studies conducted so far to judge the relative effectiveness of monetary and fiscal policies with regard to their impact on economic activities shows that in this respect only a few studies had been done for India. Further, it is clear that methodologically there are differences in these studies but none of the studies has attempted to judge the relative effectiveness of monetary and fiscal policies in respect of their impact on economic activity by taking into account the difference in various exchange rate regime periods. According to
Mundell-Fleming model, the effectiveness of monetary and fiscal policies is also influenced by the fact that whether we are analyzing it under fixed exchange rate system or flexible exchange rate system. As explained earlier, under fixed exchange rate regime, where capital flows are highly elastic in response to changes in the interest rate, monetary policy has little or no effect while fiscal policy is highly effective. Under Flexible Exchange rate regime, fiscal policy does not have any lasting impact on the domestic levels of income and employment while monetary policy is relatively more effective.

The present study, therefore intends to bridge this gap. In the present study, the relative effectiveness of monetary and fiscal policies on economic activity has been examined taking different time periods according to various exchange rate regimes that prevailed in India at various times. In this respect the relative effectiveness of monetary and fiscal policies has been examined for the three time sets of data for the Indian economy. The time periods considered under the present study are as follows:

I : 1965-1978 (Fixed exchange rate regime)
II : 1979-1992 (Flexible exchange rate regime)
III : 1993-2010 (Managed floating exchange rate regime)

The last period is taken as a representative of managed floating exchange rate in India (Annexure I and II); The second period is taken as a representative of flexible exchange rate in India (Annexure III); The first period is taken as a representative of fixed exchange rate regime (Annexure IV and V). Here, it is to be noted that the above classification of time period is on a broad basis. During each time period
some changes/adjustments in exchange rates have taken place and it is not possible to take each and every change or adjustment into account while classifying the time periods according to different exchange rate regimes in India.

1.4 RESEARCH METHODOLOGY

Friedman and Meiselman (1963) claim that the functional relationship between change in the quantity of money and the resulting change in the level of income is much more stable, and hence more predictable than the functional relationship between change in investment and the consequent change in income. In this context, the main objective of this research is to empirically test the relative effectiveness of monetary and fiscal policy for the three time sets of data for the Indian economy: 1965 to 1978 (fixed exchange rate), 1979 to 1992 (flexible exchange rate), and 1993 to 2010 (managed floating exchange rate). The methodology adopted in present study is similar to that as adopted by [Poddar and Hunking (1972); Anderson and Jordan (1968)].

Accordingly, in this research, aggregate expenditure on goods and services (\(\text{GNP} = \text{GNE at current prices}\)) is used as a measure for level of economic activity. Further, the study uses changes in monetary base (\(B\)) and money stock (\(M\)) as alternative measures of monetary action. Alternately, changes in full employment budget concepts namely, full employment budget surplus or deficit \(\{(R-G) > < 0\}\), full employment tax revenue (\(R\)) and expenditure (\(G\)) have been used as relevant measures for fiscal policy in this research study. This research study uses full employment budget concept because it is more reliable measure
of the expansionary or contractionary fiscal action compared to the actual budget deficit or surplus. The full employment budget surplus is an estimate of what the budget result would be with a given expenditure and taxation program if the economy were at the full employment level of output. It is clearly a hypothetical construct designed to remove the effects of fluctuations in the actual level of economic activity from the budget result and to permit the identification of changes in government discretionary policy. However, the use of the full employment surplus in such a way does not guarantee the achievement of the full employment objective. (Daryl, A. Dixon, 1973)

In order to empirically test the comparative effectiveness of policy variables in the case of developing economy like India, taking due advantage of longer time series and splitting the period between fixed, flexible, and managed floating exchange rates, empirical model used by Anderson and Jordan (1968) is adopted. The basic relationship between economic activity, monetary action, and fiscal action is analyzed using a reduced form single equation that is empirically written as:

\[ \Delta Y = \alpha_0 + \alpha_1 \Delta M + \alpha_2 \Delta F \]

Where,

\( \Delta Y \), changes in the GNP (economic activity)
\( \Delta M \), changes in the monetary action
\( \Delta F \), changes in the fiscal action

The parameters \( \alpha_1 \) and \( \alpha_2 \) indicate the magnitudes of the impact of the monetary and fiscal influences respectively on economic activity and \( \alpha_0 \) is a proxy for the trend of all other influences on economic
activity. This research uses multiple regression analysis with naive lag structure to test the research hypotheses using the following four equations:

\[ \Delta Y_t = \alpha_0 + \alpha_{1i}\Delta B_{t-i} + \alpha_{2i}\Delta G_{t-i} + \alpha_{3i}\Delta R_{t-i} \]
\[ \Delta Y_t = \beta_0 + \beta_{1i}\Delta M_{t-i} + \beta_{2i}\Delta (R-G)_{t-i} \]
\[ \Delta Y_t = \gamma_0 + \gamma_{1i}\Delta M_{t-i} + \gamma_{2i}\Delta G_{t-i} + \gamma_{3i}\Delta R_{t-i} \]
\[ \Delta Y_t = \lambda_0 + \lambda_{1i}\Delta M_{t-i} + \lambda_{2i}\Delta G_{t-i} \]

Where, \( i = 0, 1, 2, 3 \)

The regression is run with alternative definitions of money, \( M_1 \) and \( M_2 \), where \( M_1 \) is the conventional definition of money (Narrow definition) and \( M_2 \) is inclusive of time deposits (Broad definition).

All the regression analyses are run on percentage change in the value of the time series variables and these regression analyses are run with alternative definitions of money, \( M_1 \) and \( M_2 \). \( M_1 \) is the money supply defined in the conventional sense consisting of demand deposits (D) and currency outside banks (C). \( M_2 \) is the money supply which includes time deposits (TD). Monetary base is defined to include currency outside banks (C) and the reserves held in the Reserve Bank of India. During the empirical testing, it is assumed that full employment government expenditures (\( G_{FE} \)) were the same as actual government expenditures (\( G_A \)).

1.5 SCOPE AND LIMITATIONS

This research study is focused on analyzing the influence of monetary and fiscal action upon the level and structure of economic activity, taking due advantage of longer time series and splitting the
time period between fixed, flexible, and managed floating exchange rates. In this study multiple regressions analysis was performed using simple lag structure to test the relative effectiveness of monetary and fiscal policy in India.

However, it is important to keep in mind two main limitations of the approach adopted in this study. Firstly, the results of this study might not be applicable in other developing countries of the world because the developing countries have significantly different economic and political structures. Secondly, this research study does not throw any light upon the causal relationships implied in the rival theories; namely, income-expenditure approach, portfolio approach, and modern quantity theory, because the approach used in this study is not designed to test the validity of these rival theories.

1.6 DATA SOURCES

The data used in this research includes annual time series data obtained from various issues of Statistical Abstract of India, RBI Bulletin, Economic Surveys of India, Indian Public Finance Statistics and Handbook of Statistics on the Indian Economy.